

U.S. DOE Zero Energy Ready Home

National Program Requirements for Single Family Homes – Version 2.0 Draft

Summary of Major Changes from Version 1, Rev.07

Program Component	Version 1	Version 2.0 (Draft)	Rationale
Built-In Best Practices (Mandatory Requirements)			
Building Envelope Insulation Levels	2015 IECC insulation requirements for opaque areas	2021 IECC insulation requirements for opaque areas. Requires thermal breaks in walls in CZs 4-8. Exterior insulation, staggered studs, double walls, SIPs, ICFs, and other strategies meet this spec.	Delivers most robust code-based building envelope with an additional, targeted provision for Above Grade Walls. All ZERHs take advantage of the one chance to build a very high-performance envelope.
Window U/SHGC Values	Based on ENERGY STAR V6.0 specs, except for Cold Climates which are based on V5.0 specs	Based on ENERGY STAR V6.0 specs, except for Very Cold Climates (6-8) which are more rigorous at U 0.25.	Updates the ENERGY STAR window requirements. Higher performance windows may be used by partners as part of the overall envelope compliance strategy.
High Efficiency Lighting	80% requirement	95% requirement	Recognizes the cost-effectiveness of LEDs and increases ZERH efficiency, while providing a little flexibility. Note that the Target Homes assumes 100% high efficiency lighting.
Energy Efficient Appliances	All builder-installed refrigerators, dishwashers, and clothes washers are ENERGY STAR qualified	All builder-installed refrigerators, dishwashers, clothes washers, <u>and clothes dryers</u> are ENERGY STAR qualified	Recognizes ENERGY STAR labeling of clothes dryers and increases ZERH efficiency.
Indoor Air Quality	Certify under Indoor airPLUS (IAP) V1	Phase in updated IAP program requirements (currently under development) H/ERVs in Very Cold Climates (6-8) MERV 13 (minimum) filter installed on ducted heating and cooling systems	Maintains requirement to certify under the federal government's residential IAQ label for new homes – IAP. ZERH v2 includes a phase-in period during which projects may still certify under IAP Version 1, through at least 2022. Adds energy efficient whole-house ventilation in very cold climates. Increases filter performance to the level expected in the next update of IAP.
Photovoltaic (PV) Readiness	Implement the ZERH PV-Ready Checklist	Same as V1, but eliminates the exception for sites with lower annual solar resources. Also updates provisions based on current technologies.	Increases PV Readiness in ZERH homes and recognizes the major increases in PV cost effectiveness.

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Integration of Clean Energy Technologies (i.e., heat pumps)	No Requirement	DOE is requesting comments on how the ZERH program may include the new ENERGY STAR next generation certification	DOE and EPA are committed to continuing to work together to ensure that the Federal certification programs evolve towards zero-emission homes in the future while providing value to both builders and homebuyers in the market.
Efficiency Threshold			
Minimum Required Energy Efficiency Threshold	Based on the Version 1 ZERH ERI Target Home specifications circa 2013. Energy Rating Index (ERI) scores to qualify for ZERH in the 50s.	Updated ZERH Target Home achieves increased energy savings. Resulting ERI Targets to qualify for ZERH in the 40s.	Numerous innovations have entered the industry since the development of V1 and should be reflected in ZERH efficiency threshold.
Program Compliance & Administration			
Prescriptive Compliance Pathway	Allows a non-modeling compliance path. This path was rarely used.	Sunsets the Prescriptive compliance pathway.	Removes this element of program infrastructure because of extremely limited usage.
Certification of Multifamily buildings	Allows multifamily up to 5 stories, like ENERGY STAR Homes program had permitted.	Multifamily buildings will be migrated to a ZERH – Multifamily spec which is under development and available for public comment in early 2022. A transition period will allow MF buildings to continue to certify under the ZERH single family program.	Multifamily buildings warrant a MF-specific program design. ZERH-MF will provide partners with the same framework found in ENERGY STAR Multifamily New Construction, with higher efficiency and performance specs.
Size Adjustment Factor (SAF)	SAF makes the ERI Target lower for homes larger than the benchmark. It does not apply to most ZERHs because they are not larger than the benchmark.	SAF is sunset. ENERGY STAR Homes V3.1 has eliminated SAF and V3.2 will not include the SAF.	Homes under ZERH V2 will be very efficient regardless of SAF. Removing SAF also simplifies program requirements.
Implementation Timeframe	Currently in effect	Draft for public comment available Q4 2021.	Version 2 anticipated to be available for optional use in 2022.